DWG ISS	CD ISS	DWG ISS	CD ISS	DWG ISS	CD ISS
1	1	2D	1 APP1D	3D	2D
4D	3D	5D	3D APP1D	6D	4D
7D	4D APP1D	8D	4D APP2D	9D	5D
10B	6B	11D	7D	12D	7D APP1D
13D	7D APP2D				

DWG ISS	CD ISSUE	DATE ISSUED	DRAWN	APPD
14D	7D APP3D	7-25-62	RB DHC	GGL PBF PLV

SHEET INDEX

FIG.	CONTENTS	SHEET NO.	ISSUE NO.																		OLD SHEET NO.
			14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	SHEET INDEX SUPPORTING INFORMATION	A1	14																		
	CIRCUIT NOTES EQUIPMENT NOTES INFORMATION NOTES WORKING LIMITS FIGURES AND OPTIONS TABLE	B1	14																		011 012 011
1 2 A B C 5	LINE OR TIE LINE CKT RINGDOWN FLASHING START (MFR DISC.) MODIFICATION TO REDUCE ACOUSTIC DISTURBANCES AUTOMATIC CUTOFF CONTROL CKT	C1	14																		011
3 4	LINE CKT AUTOMATIC (MFR DISC.) LINE CKT AUTOMATIC	C2	14																		
	CIRCUIT REQUIREMENTS	D1	14																		012
1K& 2K 1L& 2N 2L,3K 2M& 4K 51	FOR FIG. 1, 2, & C FOR FIG. 1, 2, & C (MFR DISC.) (MFR DISC.) FOR FIG. 1, 2, & 4 FOR FIG. 1, 2, & 4 FOR FIG. 1, 2, & C	E1	14																		012
52 53	FOR FIG. 1, 2, & C FOR FIG. 2 & 4	E2	14																		013
54	FOR FIG. 1, 2, & C	E3	14																		

SUPPORTING INFORMATION

CATEGORY	NO.
EQUIPMENT DRAWING	ED-69053-01

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE: 14D

14

REPLACING SD-69078-01

SD- 69076-01

STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

(LINE OR RD TL) OR (AUTO. LINE)

AT&TCO
STANDARD

SD-69076-01-A1
SHEET INDEX
8 SHEETS

BELL TELEPHONE LABORATORIES
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DWG SIZE 3S

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SD-69076-01-A1

14 3/4

DRAWING ISSUE	
14D	RB AHC PLY

CIRCUIT NOTES:

101.

DESIG	AMP	POTENTIAL FUSED	ONE PER
A	2	20V SIG	2 FIG. 1 & ASSOC FIG. C & 5
B	2	20V TLK	2 FIG. 4
MFR DISC.	2	20V SIG	1ST & 2ND CKT
	2	20V SIG	3RD & 4TH CKT

BATTERY SYMBOL	VOLTAGE RANGE
-20	14-26V

102.

FEATURE OR OPTION		PROVIDE		
		FIG.	APP OR WIR	QUANTITY
LINE OR TIE LINE CKT RINGDOWN		1		1 PER LINE
FLASHING START		2		1 PER 4 FIG. 1 & 4
AUTO. TIE LINE CKT		4		1 PER LINE
INCOMING SIG CKT	A & M ONLY	B		
	STD	C		
WHEN THIS CKT CONNECTS TO A CENT. OFF. OR PBX			X	
WHEN THIS CKT TER AT	MORE THAN 12 TEL & KEY CKT POS		W	
	12 OR LESS TEL & KEY CKT POS		V	
WHEN THE ATT STA	CAN BE CUT OFF AUTO. BY THE PRINCIPAL STA	5	S	
	CAN NOT BE CUT OFF AUTO. BY THE PRINCIPAL STA		S	
WHEN THERE IS A CONNECTION TO A PRINCIPAL STA & THE ATT STA CAN BE CUT OFF BY THE EXCLUSION KEY IN THE PRINCIPAL TEL SET			R	
WHEN THERE IS NO CONNECTION TO A PRINCIPAL STA OR WHEN THERE IS A CONNECTION TO A PRINCIPAL STA WHERE THE ATT STA CANNOT BE CUT OFF BY THE EXCLUSION KEY IN THE PRINCIPAL TEL SET			Q	
WHEN CONNECTION TO POS PILOT LAMP IS REQD			N	
WHEN VOICE SIG IS REQD			M	

103.

NETWORK VALUES			
NETWORK		RESISTANCE IN OHMS	CAPACITANCE IN UF
NO.	CODE		

104.

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES							
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USED IN CIRCUIT			
				STD	A&M	MD	
40				FIG. 4		FIG.3	
60	FIG.A,B, OR C	FIG.A		FIG. C	FIG.B	FIG.A	
70	Y,Z	Z		Y		Z	
80	W,V	V		W,V			
90	Q,R,S, OR T	Q		Q,R,S OR T			
108	FIG. 5	S OR T	102	FIG. 5		T	
				S			
110			102	N			
120			102	M			
	J OR K	K		J		K	

EQUIPMENT NOTES:

201. S AND T OPTIONS ARE ALWAYS FURNISHED. WHEN THE ATTENDANT STATION IS NOT TO BE CUT OFF AUTOMATICALLY BY THE PRINCIPAL STATION, T WIRING (STRAP ACROSS THE (A) RES) SHALL BE REMOVED.

202. FOR INTERCONNECTION OF THIS CIRCUIT FOR MOBILE RAPCON AND GROUND CONTROL APPROACH (GCA) INSTALLATIONS, SEE INTERCONNECTING SCHEMATIC, SD-69429-01.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

WORKING LIMITS

	PANEL AND MANUAL AREAS	STEP-BY-STEP AREAS
MIN INS RES CENT. OFF.	10,000	15,000
MIN INS RES PBX	20,000	30,000
FIG. 3 & 4		
MAX EXT CKT LOOP	1540	
MIN INS RES	20,000	

MAX COND LOOP RES (20~SIGNALING)

FIG.		72V	80V	84V	95V
1 & A		1000	1500		2100
1 & B		1200	1800	2200	2700
1 & C	Z	3000	3500	3700	4400
	Y	1200	1800	2200	2700

FIGURES AND OPTIONS ON THIS DWG			
CKT FIG.		APP OR WIRING	
1	A	Z	
2	B	Y	
3	C	X	
4		W	
5		V	
		T	
		S	
		R	
		Q	
		N	
		M	
		K	
		J	

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STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

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(5)

DRAWING ISSUE	
14D	RB PHC PLV

FIG. 1
LINE OR TIE LINE CKT RINGDOWN

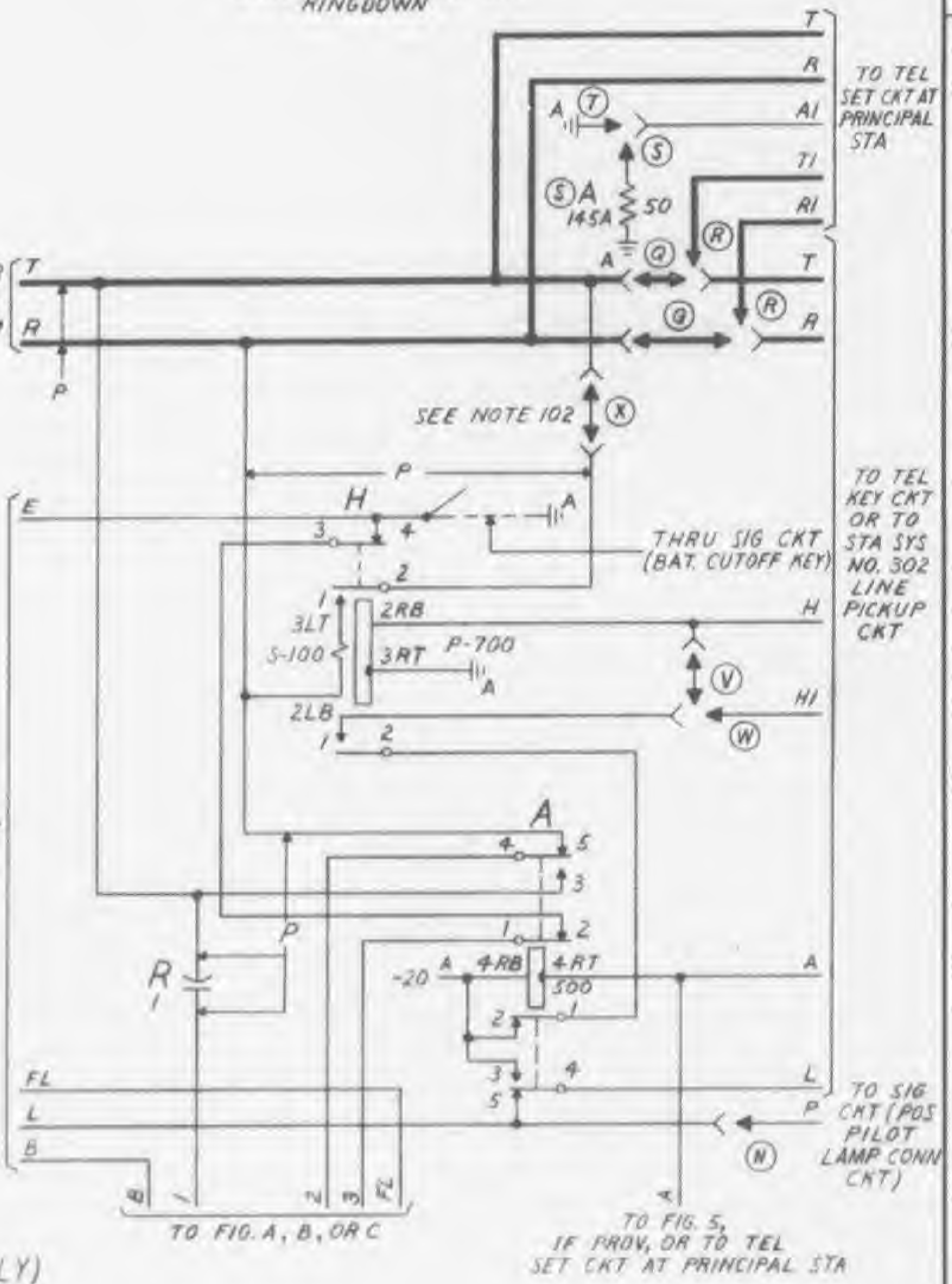

TO CENT. OFF. OR P.B.X. LINE CKT, KEY EQPT STA, OR TIE LINE
T
R
P
T
R
A1
T1
R1
TO TEL SET CKT AT PRINCIPAL STA
Ⓣ
Ⓢ
Ⓢ A 145A
50
Ⓠ
Ⓡ
SEE NOTE 102
Ⓧ
P
E
H
THRU SIG CKT (BAT. CUTOFF KEY)
3LT
2RB
S-100
3RT
P-700
2LB
TO TEL KEY CKT OR TO STA SYS NO. 302 LINE PICKUP CKT
H
H1
Ⓥ
Ⓦ
A
R 1
-20
4RB
4RT
300
FL
L
B
TO SIG CKT (POS PILOT LAMP CONN CKT)
Ⓝ
TO FIG. A, B, OR C
TO FIG. 5, IF PROV, OR TO TEL SET CKT AT PRINCIPAL STA

FIG. 2
FLASHING START

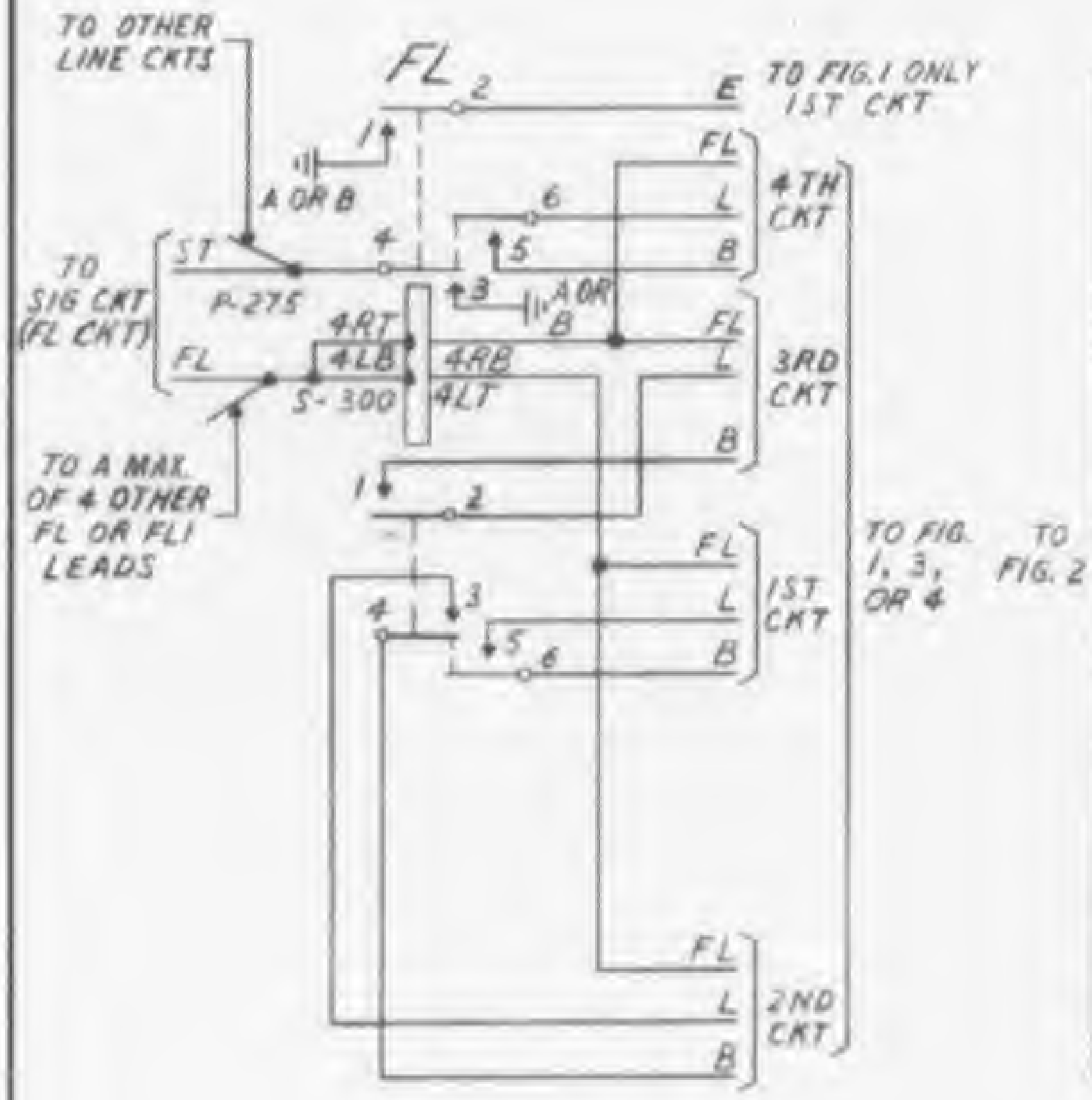


FIG. A (MFR DISC)

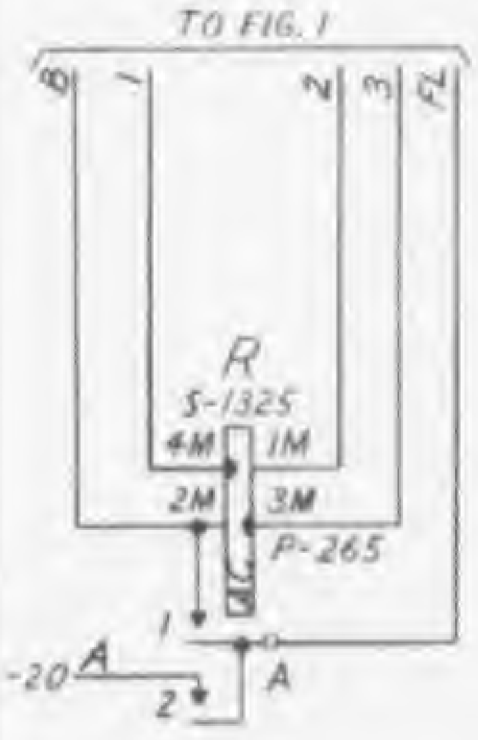


FIG. B (A&M ONLY)
MODIFICATION TO REDUCE ACOUSTIC DISTURBANCES

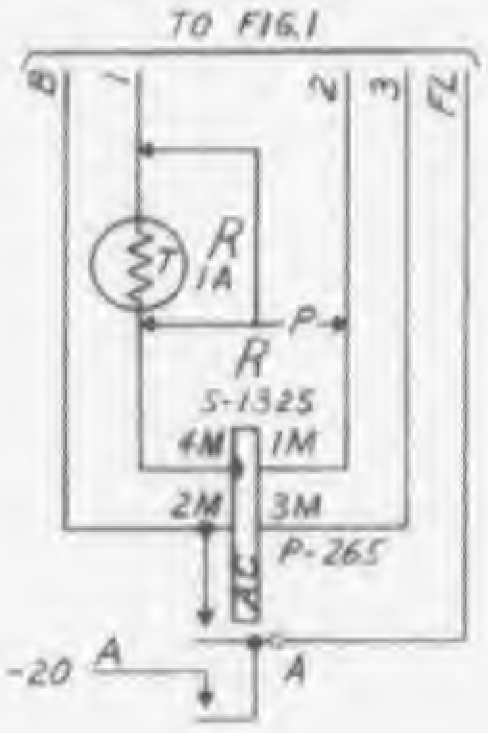


FIG. C

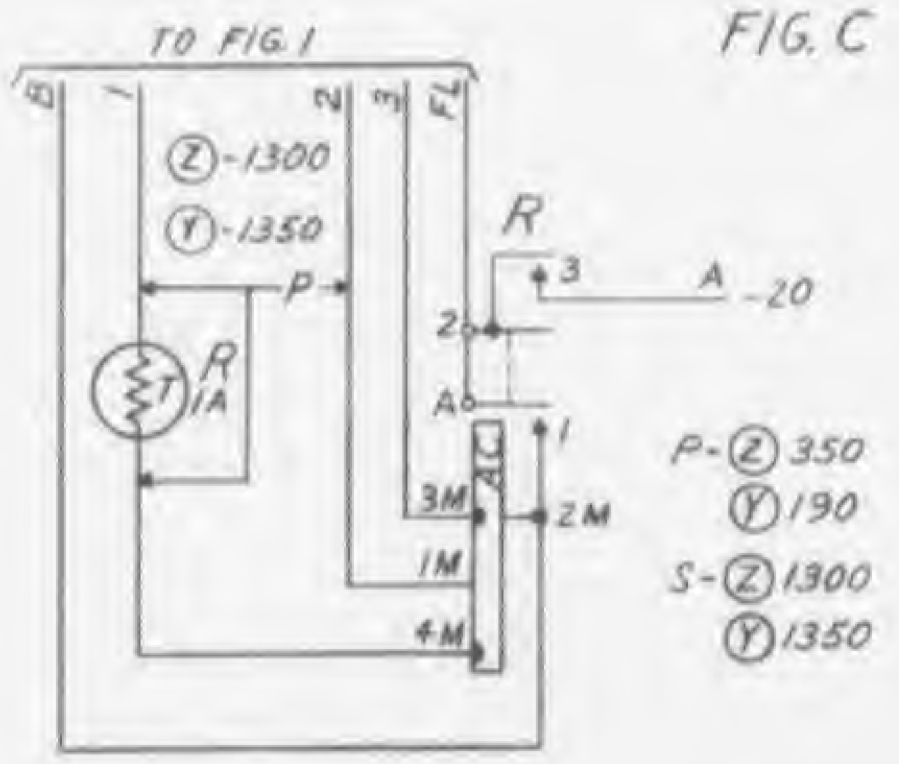
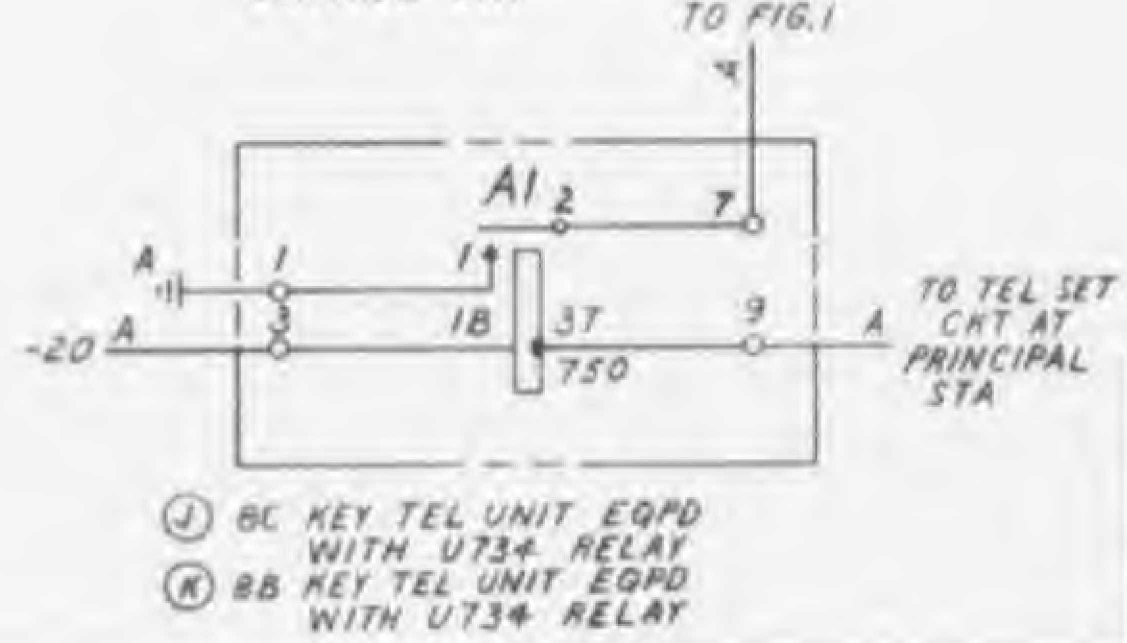


FIG. 5
AUTOMATIC CUTOFF CONTROL CKT



Ⓙ BC KEY TEL UNIT EQPD WITH U734 RELAY
Ⓚ BB KEY TEL UNIT EQPD WITH U734 RELAY

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STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

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DRAWING ISSUE	
14D	RB DNC DLY

FIG. 3 (MFR DISC.)
LINE CKT
AUTOMATIC
SEE NOTE 104

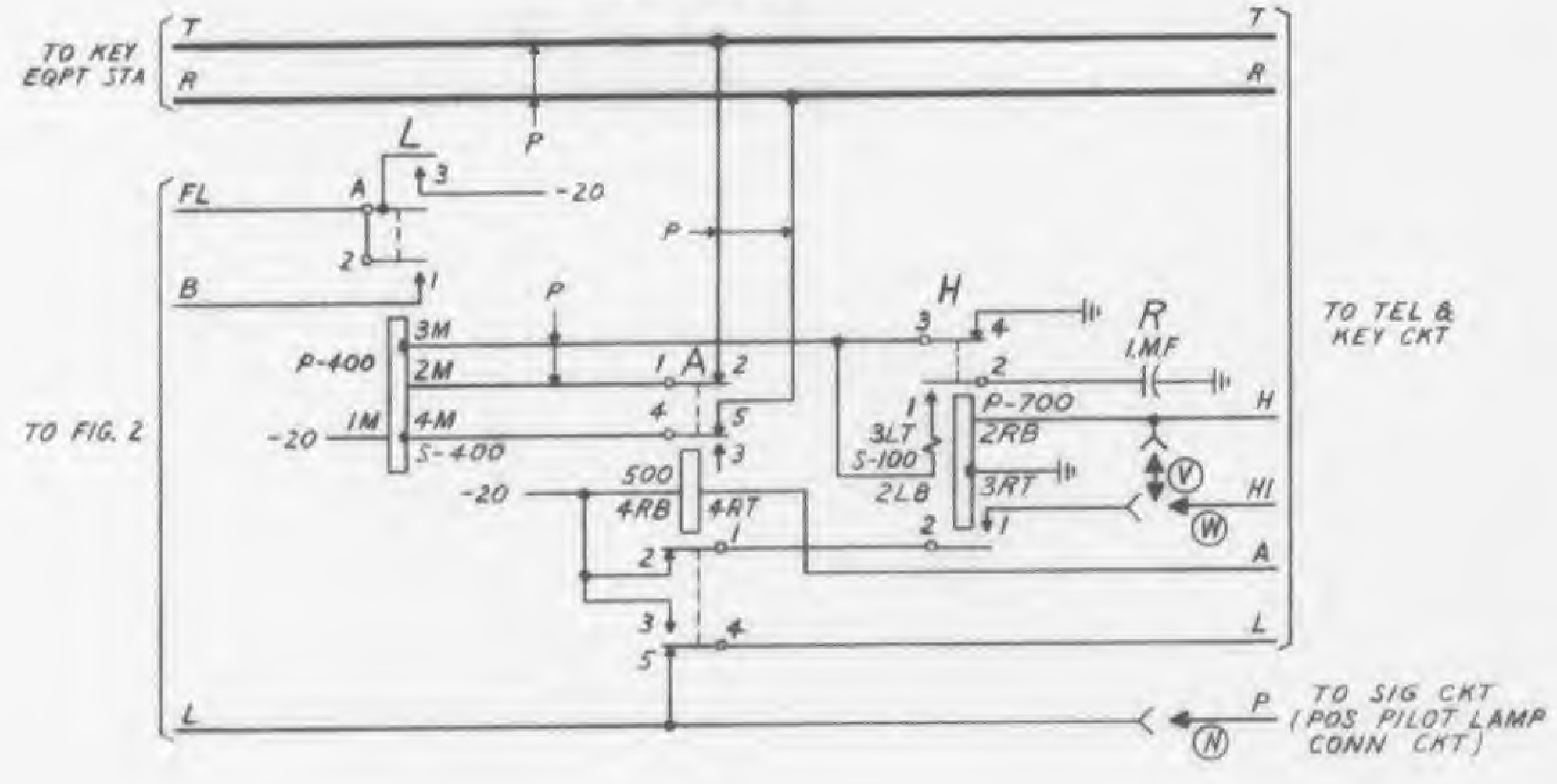
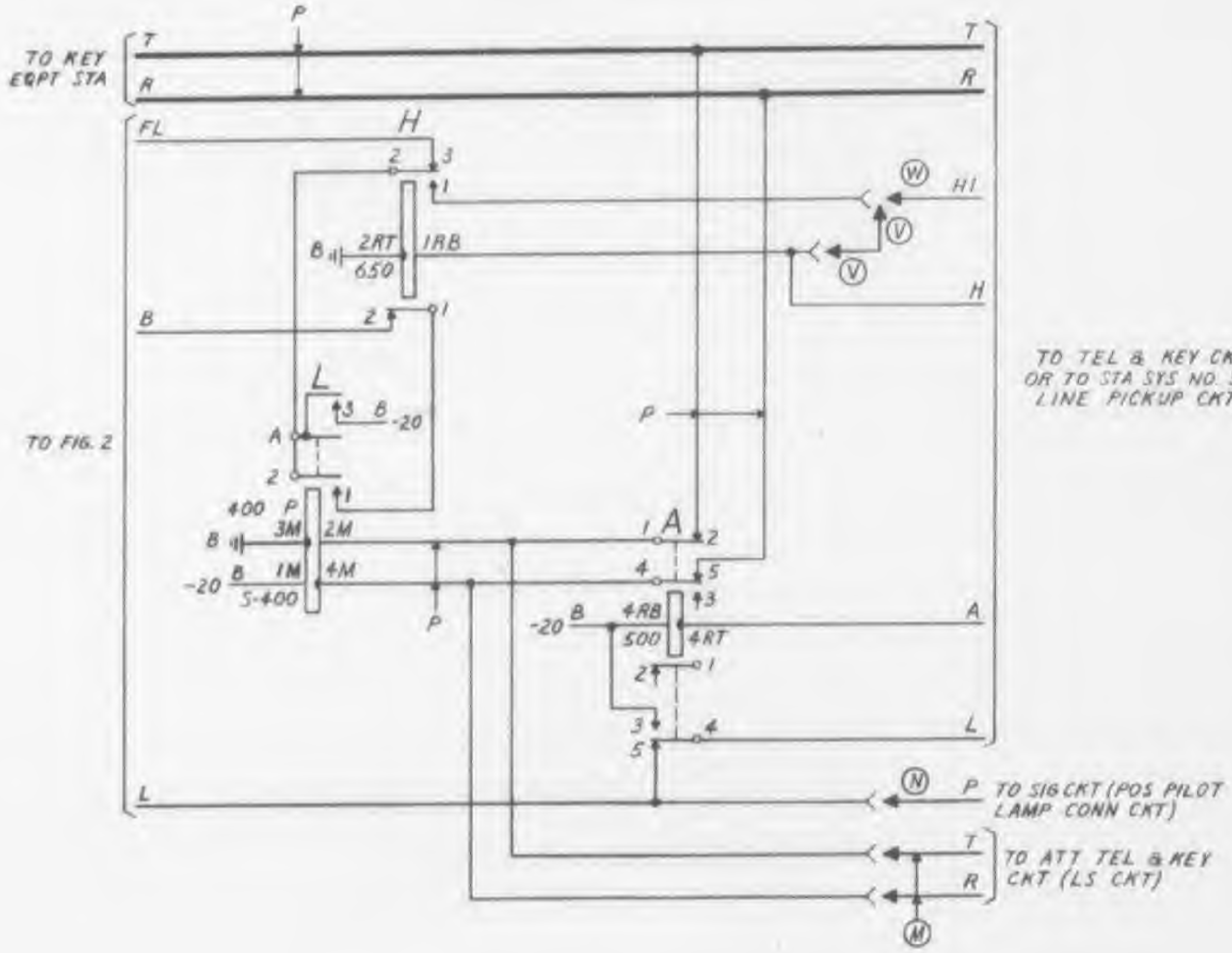


FIG. 4
LINE CKT
AUTOMATIC
SEE NOTE 104



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STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

SD-69076-01-C2

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CIRCUIT REQUIREMENTS

KEY EQUIPMENT NO. 101A, 101B, OR 102A AND SWITCHING SYSTEM NO. 302, LINE CIRCUIT, OR RINGDOWN TIE LINE CIRCUIT

DRAWING ISSUE: 14D RB DHC DLV

APPARATUS					MECH REQT			CIRCUIT PREPARATION					DIRECT CURRENT FLOW REQT					REMARKS
									TEST CLIP DATA		TEST SET PREP	SEE TEST NOTE			AFTER SOAK	TEST	READJ	
DESIG	CODE	OPTION	FIG		BSF FIG	CONT PRESS	ARM TRVL	BLOCK OR INSULATE	CONN BAT	CONN GRD			TEST WDG	TEST FOR	MA	MA	MA.	
RELAYS																		
A	R2037		1,3		7/7	L	20			RT(A)	GRD			O		17.0	16.5	
			4							RT(A)	GRD			NO		10.0	11.1	
FL	R2040		2		23/23	L	30		RB(FL)		BAT.		P	O		46.0		CONN DIRECT
									LT(FL)		BAT.		S	O		42.0	36.5	GRD TO RT(FL)
H	R2038		1,3		10/1	L	SPL	(A)O	RB(H)		BAT.	2/3/6	P	O		13.7	13.0	W OPT
								(A)O	RB(H)		BAT.	2/3	P	O		13.7	13.0	REMOVE THE (H) LAMPS IN THE KEY & TEL CKT (V OPT)
H	E6157		4		3/2	L	20		RB(H)		BAT.			O		18.0	17.0	W OPT
									RB(H)		BAT.			O		16.0	17.0	REMOVE THE (H) LAMPS IN THE KEY & TEL CKT (V OPT)
L	B210		3,4		[illegible]		30	(A)O	1T(A)	4T(A)	W		P/S	O	6.0	3.7	3.5	
								(A)O	1T(A)	4T(A)	W		P/S	R	6.0	1.4	1.5	
R	J42		A		9		35	(A)O		3M(R)	GRD		P	O		20.0		CONN DIRECT BAT. TO 2M (R)
								(A)O, 4T(A)	1WR	4M(R)	B/G		S	NO		6.5	9.0	
												1	S	O		AC		
R	J48		B		9	L	25	(A)O		3M(R)	GRD		P	O		19.5		CONN DIRECT BAT. TO 2M(R)
								(A)O, 4T(A)	1WR	4M(R)	B/G		S	O		9.0	7.9	
								(A)O, 4T(A)	1WR	3M(R)	B/G		S	NO		5.2	6.6	
												1	S	O		AC		
R	B365	Z	C		[illegible]		35	(A)O	2M(R)	3M(R)	B/G		P	O		9.5		
								(A)O, 4T(A)	1M(R)	4M(R)	B/G		S	O		6.0	5.6	
								(A)O, 4T(A)	1M(R)	3M(R)	B/G		S	NO		4.0	4.2	
R	J23	Y	C		5		23	(A)O		3M(R)	GRD	5	P	O		20.0		CONN DIRECT BAT. TO 2M(R)
								(A)O, 4T(A)	1M(R)	4M(R)	B/G	5	S	O		6.3	7.8	
								(A)O, 4T(A)	1M(R)	3M(R)	B/G	5	S	NO		[illegible]	5.7	
												4/5	S	O		AC		
BB KEY TEL UNIT																		
A1	U734		5		115/136	H	28			TERM.9	GRD			O		10.9	9.8	

TEST NOTES:

1. TEST AND READJ ELECTRICALLY FOR OPERATION ON AC BY RINGING MANUALLY FROM CENT. OFF. OR PBX, OR BY APPLICATION OF RINGING VOLTAGES BETWEEN 95V AND 111V THRU AN 8B LAMP AND 6300 OHM NON-INDUCTIVE RES ACROSS THE REL WDG AND SERIES 1 UF CAP. THE ABOVE VALUE OF TEST RES IS BASED UPON THE LINE TO THE CENT. OFF. OR PBX BEING OPENED.

2. MIN. 10 FOLLOW FOR 1 TOP SPG.

3. THE ARM. TRVL FOR THE R2038 (H) REL IS 20.

4. TEST AND READJ REL (R) FOR OPERATION ON RINGING CURRENT BY CONNECTING MIN. 75V, 1100-1200 RPM RINGING SUPPLY THRU A 13C OR EQUIVALENT RES LAMP AND 7000 OHMS NONINDUCTIVE RES TO THE RING AND RINGING GRD TO THE TIP OF THE TRK (OPEN LINE TOWARD CENT. OFF. WHILE MAKING THIS TEST).

5. MIN. BACK TENSION 2 GRAMS.

6. BLOCK RELAY OPERATED IN THE ASSOCIATED TEL AND KEY CKT SO AS TO DISCONNECT ANY TEST INTERFERENCE FROM THE R LEAD TO THAT CIRCUIT.

STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

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DRAWING ISSUE	
14D	RB DWG PLY

FIG. 1K & 2K
(FOR FIG. 1, 2 & C)
FOR USE WHEN THERE IS NO CONNECTION TO THE PRINCIPAL STATION

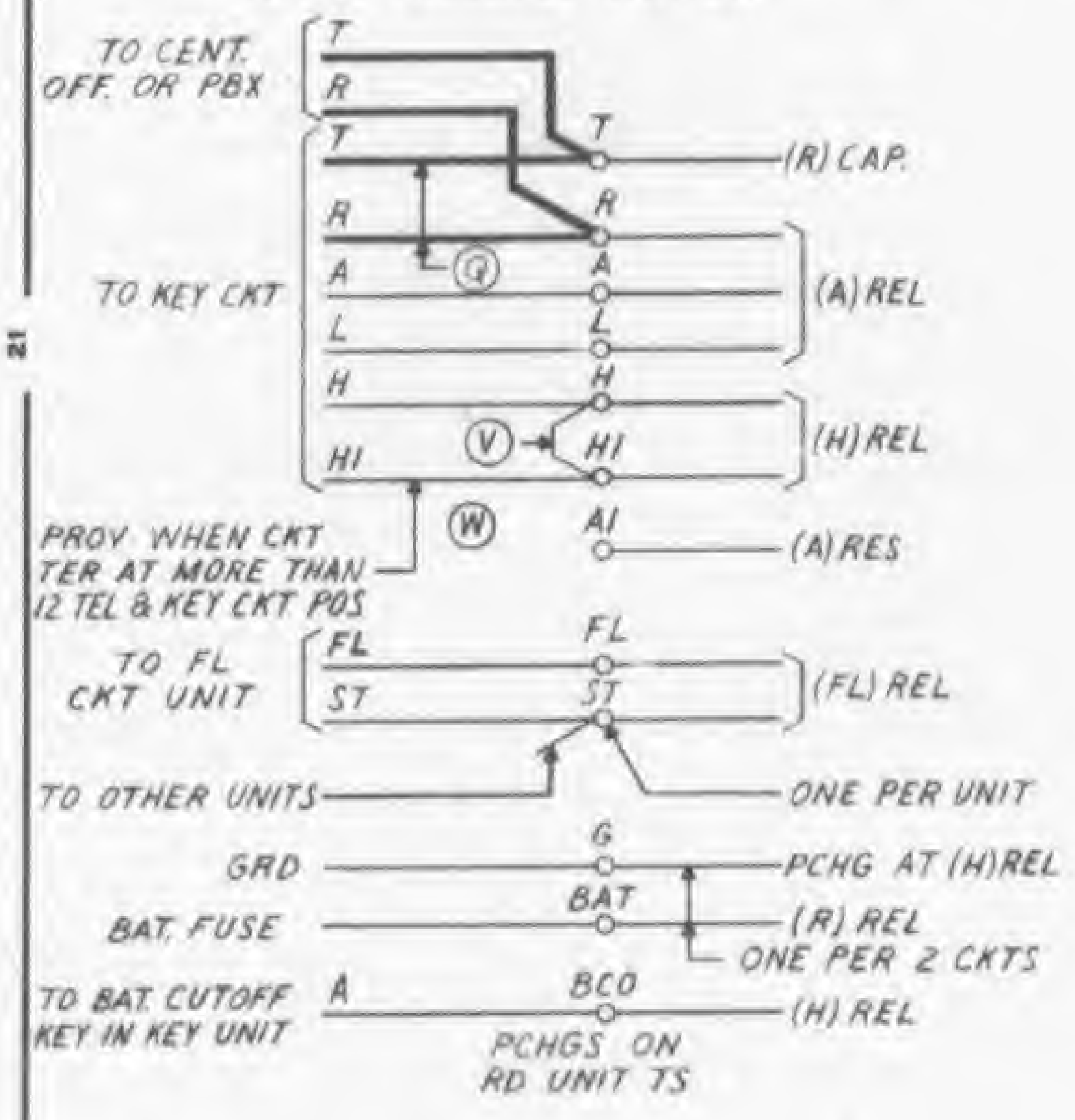


FIG. 2L (MFR DISC.), 3K (MFR DISC.) 2M & 4K
(FOR FIG. 1, 2 & 4)

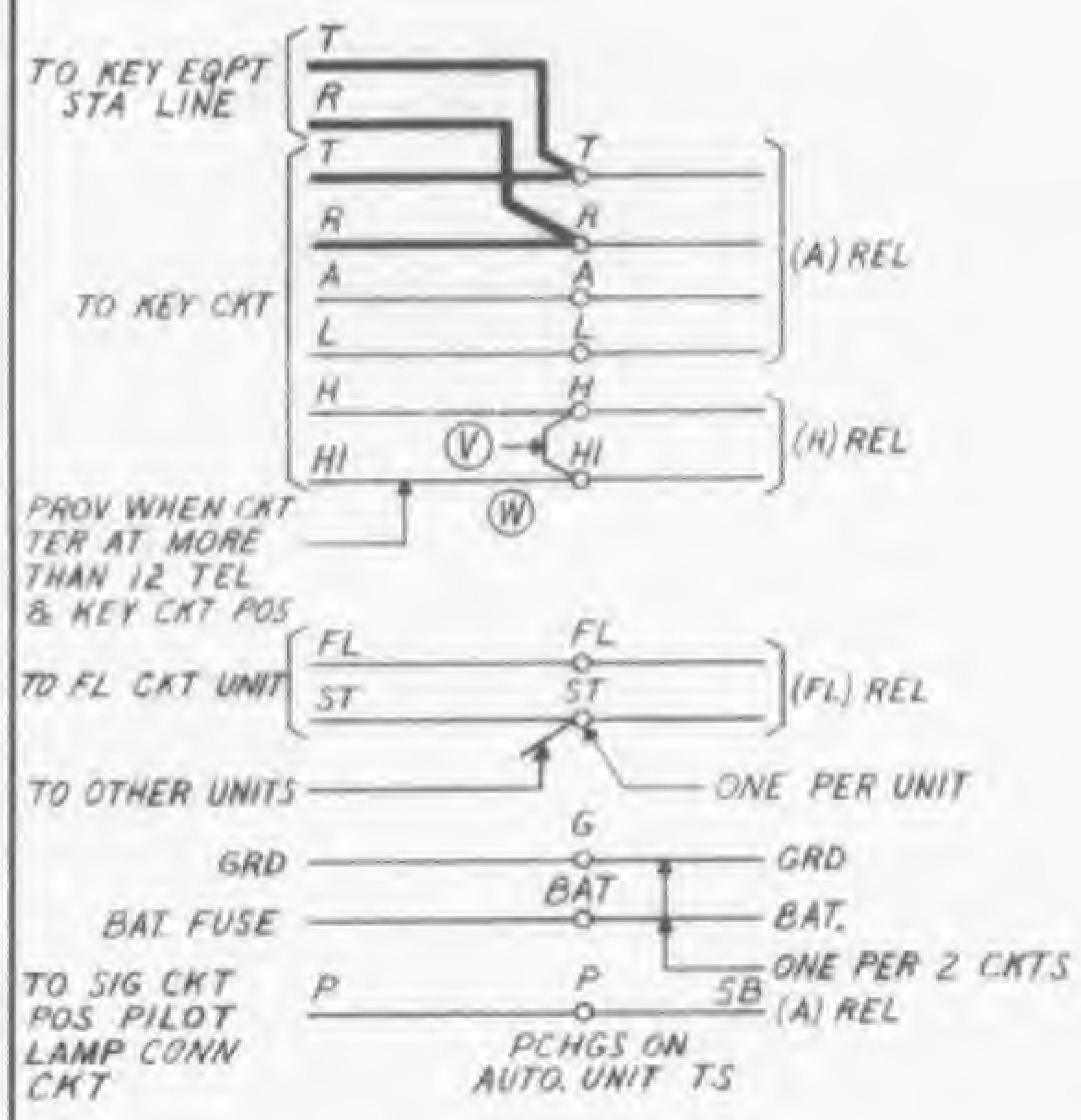


FIG. 1L & 2N (MFR DISC.)
(FOR FIG. 1, 2 & C)
FOR USE WHEN THERE IS A CONNECTION TO THE PRINCIPAL STATION

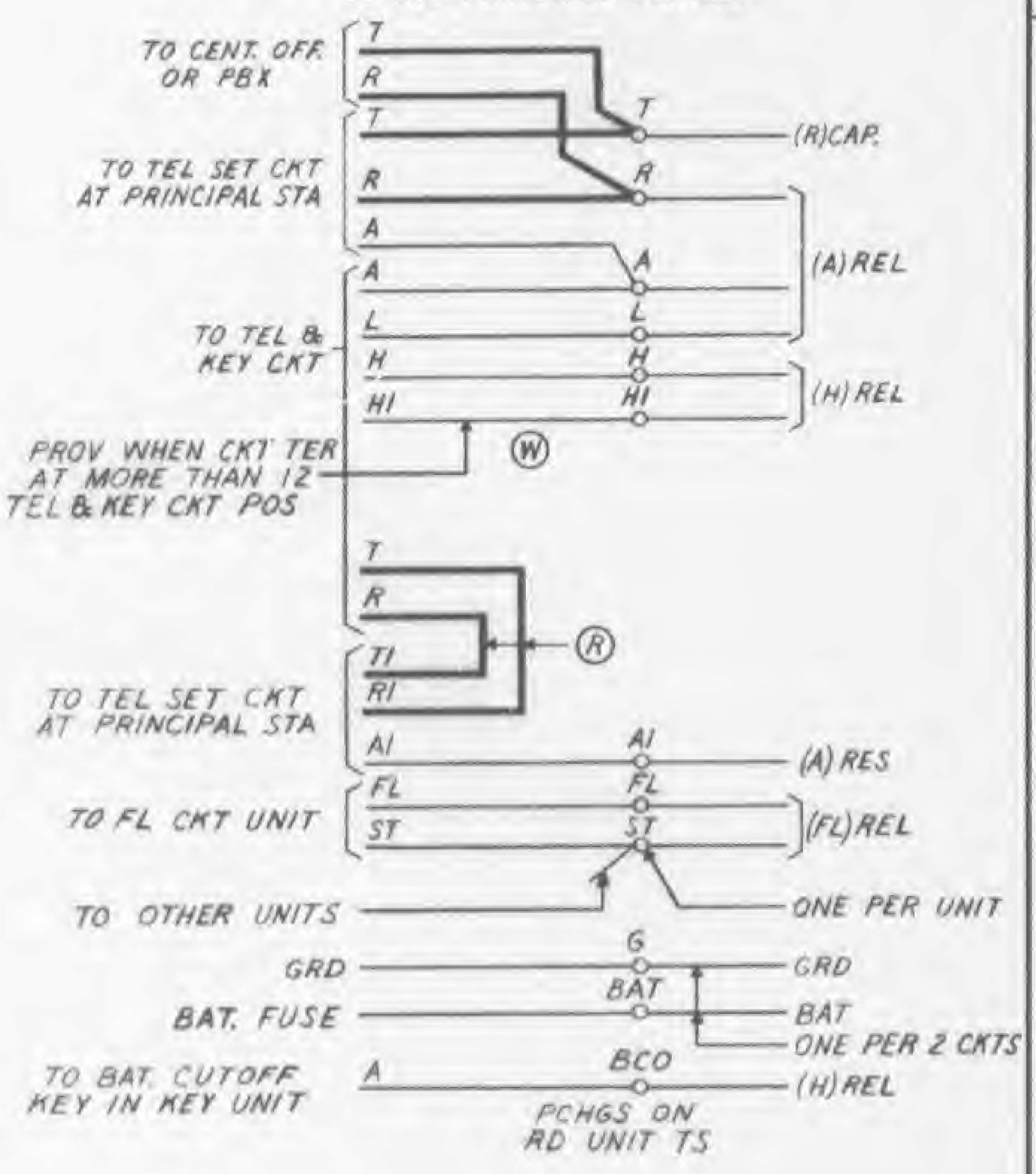
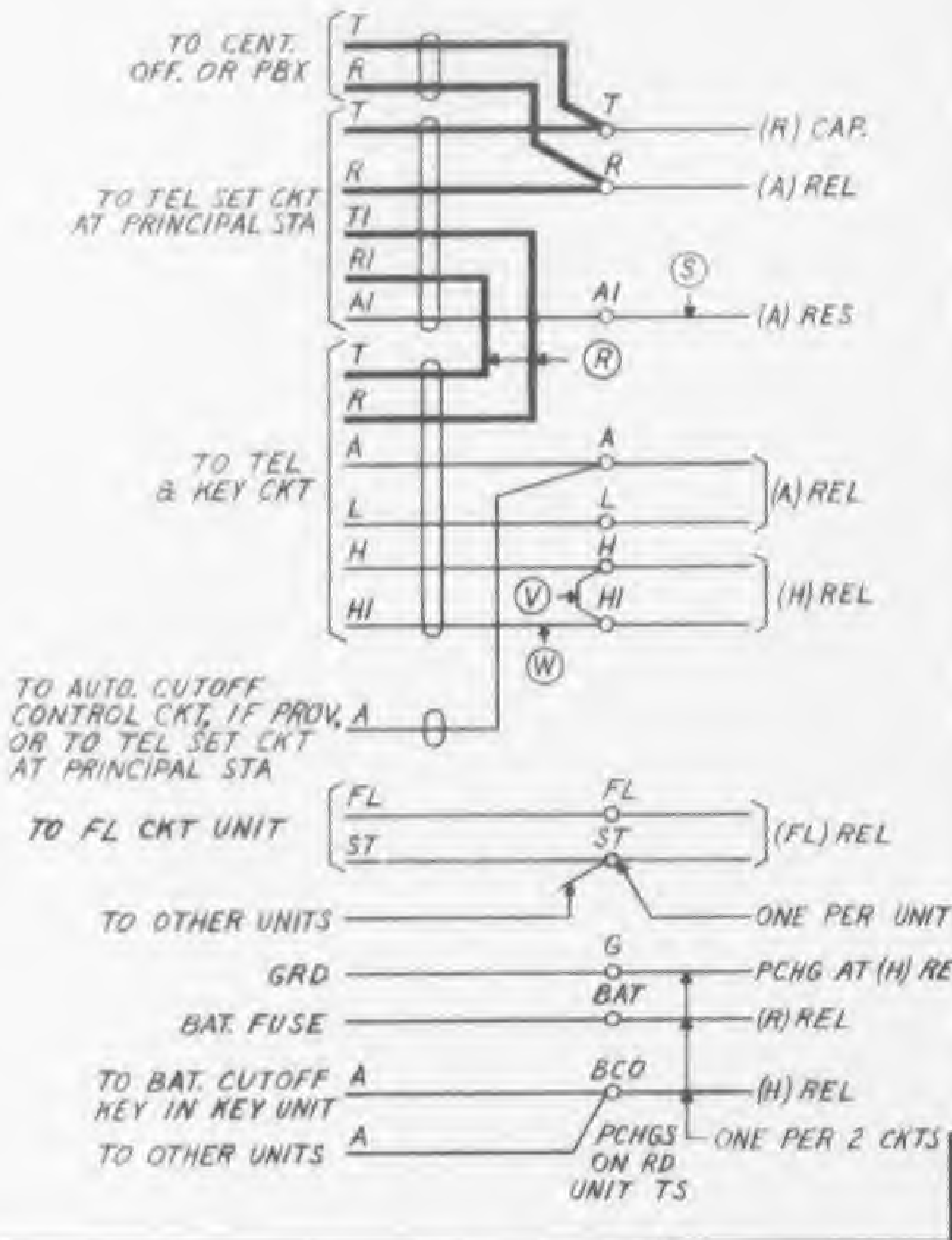


FIG. 5I
(FOR FIG. 1, 2 & C)
FOR USE WHEN THERE IS A CONNECTION TO THE PRINCIPAL STATION



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STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

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DWG SIZE 3S

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DRAWING ISSUE	
14D	RB DHC PLV

FIG. 52
(FOR FIG. 1, 2 & C)
FOR USE WHEN THERE IS A CONNECTION TO THE PRINCIPAL STATION PRIME ANSWERING FEATURE PROVIDED

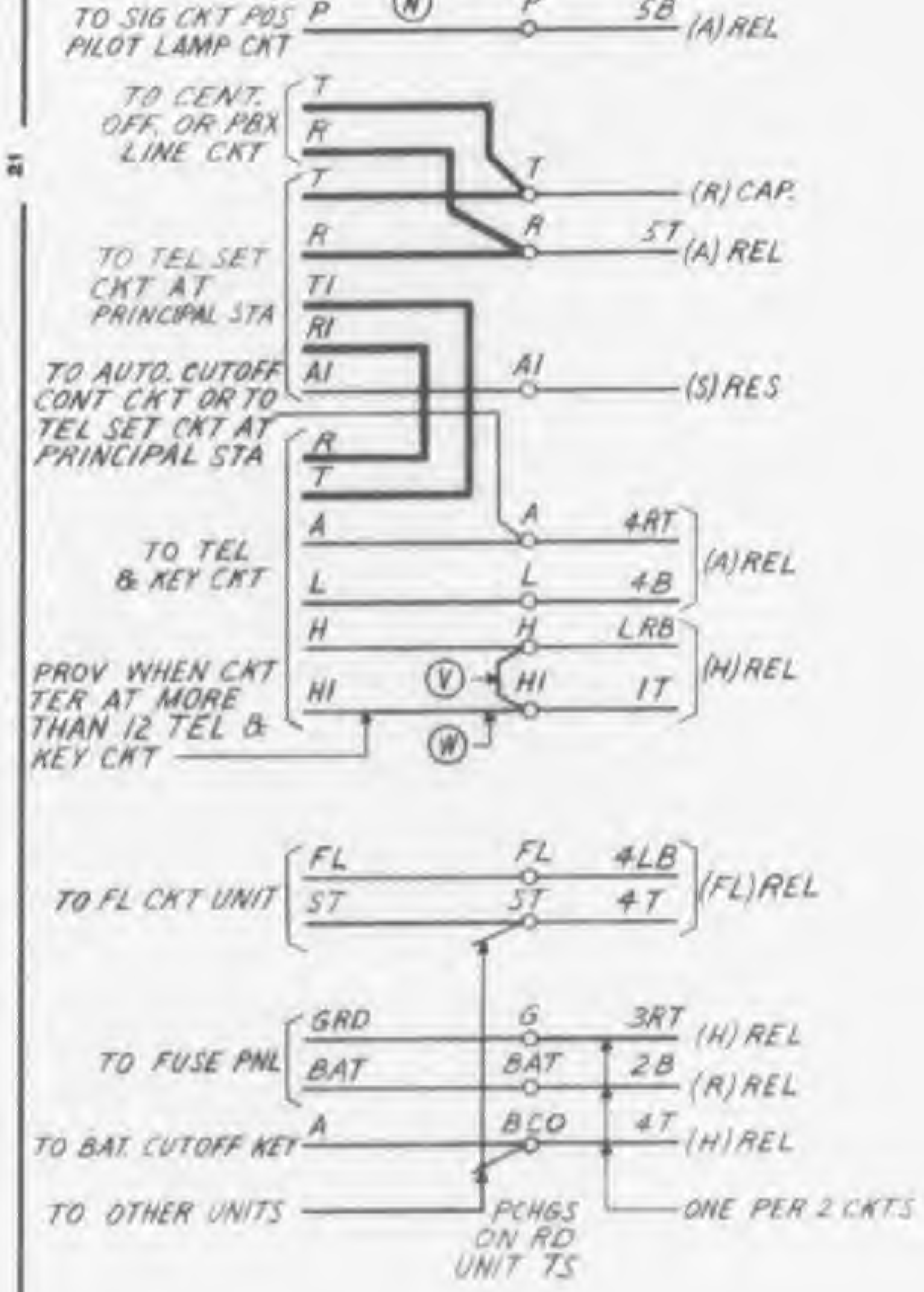
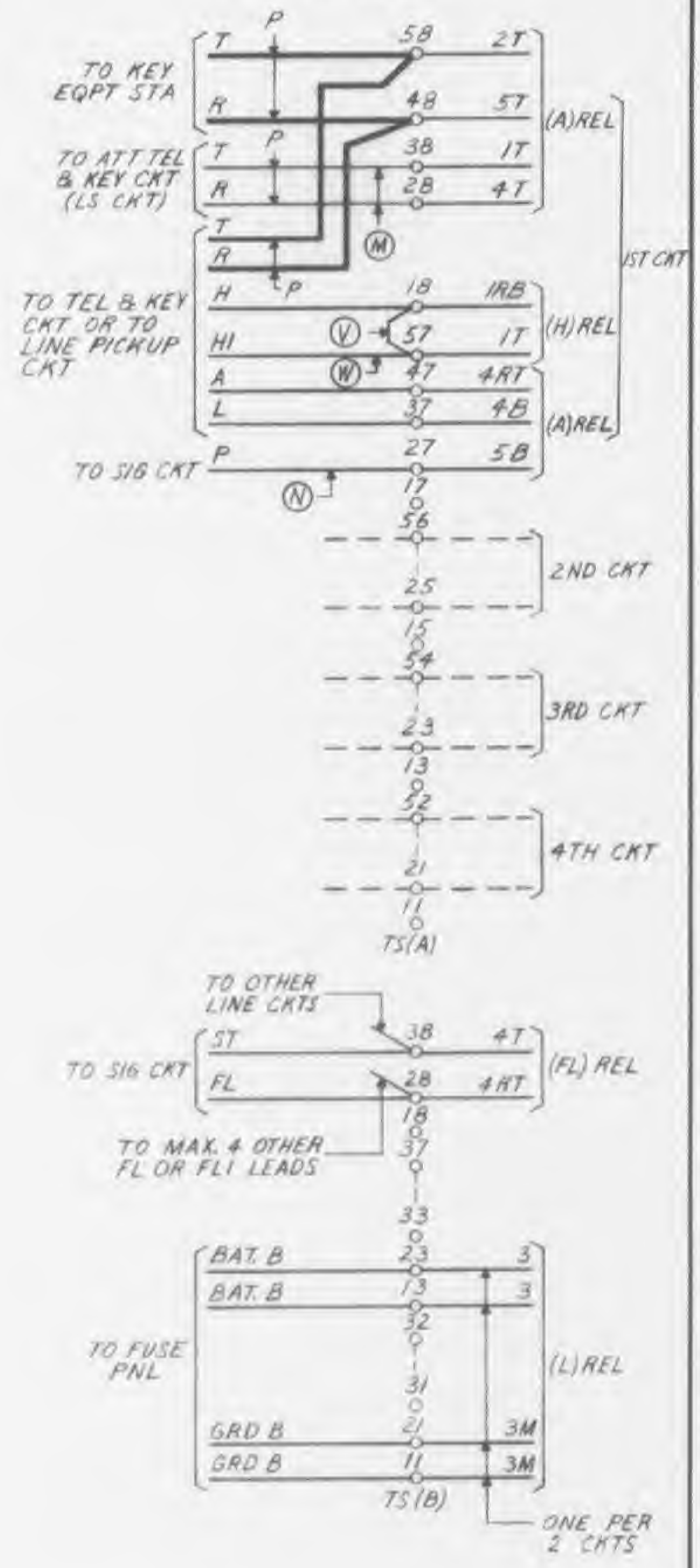


FIG. 53
(FOR FIG. 2 & 4)



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SD-69076-01-E2

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STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

SD-69076-01-E2

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DWG SIZE 3S

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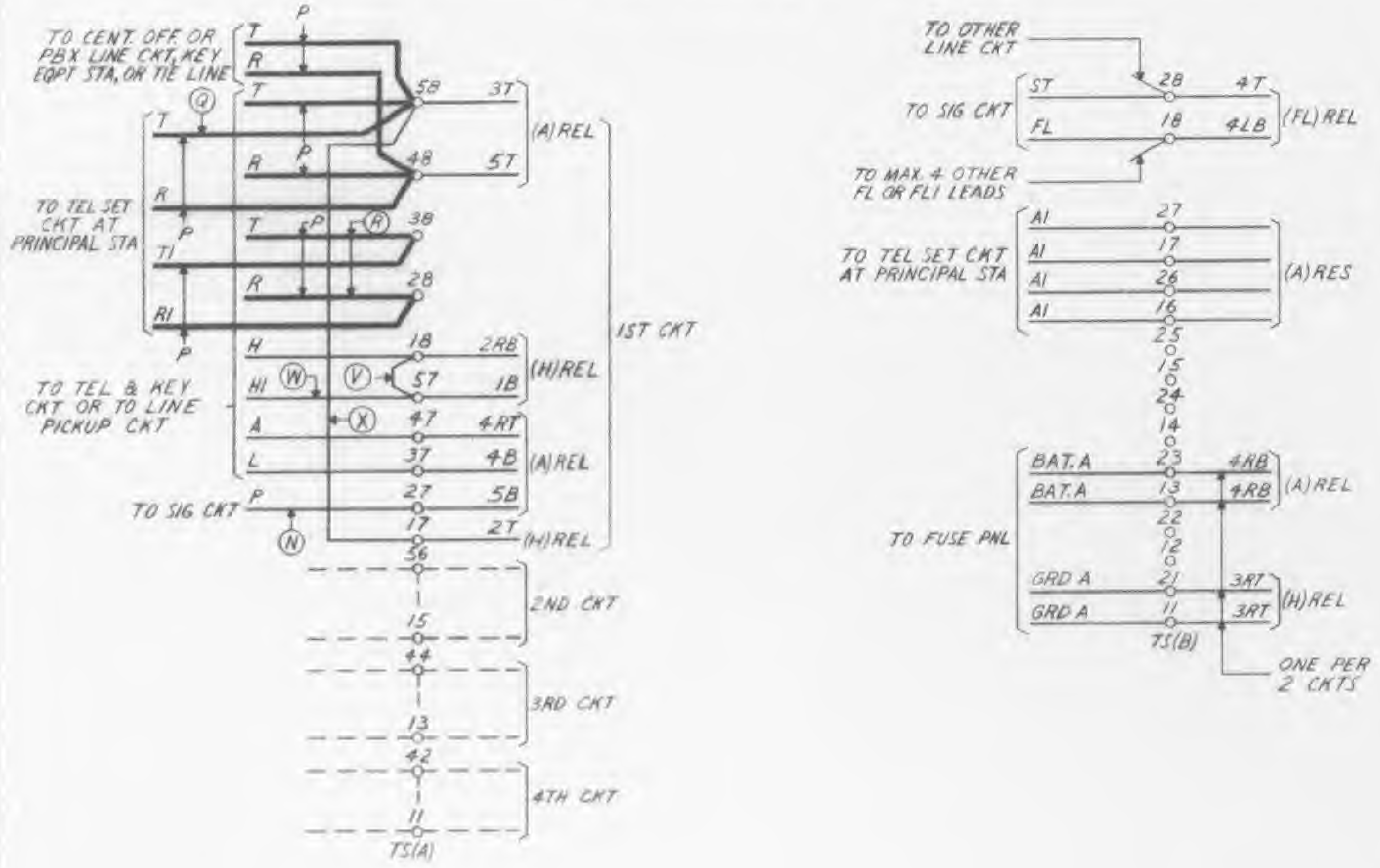
FIG. 54
(FOR FIG. 1, 2 & C)



DRAWING ISSUE	
14D	RB DMC DLY

14

STATION SYSTEMS

KEY EQUIPMENT NO. 101A, 101B, OR 102A
AND SWITCHING SYSTEM NO. 302,
LINE CIRCUIT, OR
RINGDOWN TIE LINE CIRCUIT

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INCORPORATED

3S

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